AMENDMENTS TO THE DRAWINGS

The attached 6 replacement sheets of drawings include adding new Fig. 1a. These 6 replacement sheets, which includes Figs. 1, 1a and 2-10, replaces the original 5 sheets of drawings and adds Fig. 1a. Figs. 1 and 2-10 remain unchanged.

Attachment: 6 Replacement Sheets showing Figs. 1, 1A and 2-10.

REMARKS/ARGUMENTS

This Amendment is responsive to the Office Action dated December 22, 2004.

Claims 1-22 are pending. Of the claims, claim 1 stands rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention; claims 1-4, 9, 10 and 15-18 stand rejected under 35 U.S.C. 102 (b) as being anticipated by Leonard et al. US 4,062,203; and claims 5-8, 11-14 and 19-22 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Leonard. Claim 1 is also objected to because at line 17 "greater magnitude" should be changed to "greater than the magnitude".

The drawings are objected to as failing to adequately show disk spring 12, sleeve 36 and shoulder 38 assembled to form a shock damper, and an additional figure showing these elements in section is requested.

The disclosure is objected to because on both pages 10 and 12, lines 1 include the phrase "denoted by arrows B and C", it being alleged that it is not possible to determine what elements and/or features are actually denoted by those arrows. The specification is also objected to as failing to comply with 37 CFR 1.71 and 1.75 (d)(1) because the specification allegedly fails to provide antecedent basis for the subject matter of claims 8, 14 and 22.

To overcome the objection to the drawings, Applicant herein submits a replacement set of drawings including a new Figure 1a which is a copy of Fig. 1 modified to include a sectional illustration of disk spring 12, sleeve 36 and shoulder 38 as requested. No other additions or changes to the drawings are made. The submitted drawings contain no new matter.

Addressing the objection to the disclosure on pages 10 and 12, lines 1 regarding the phrase "denoted by arrows B and C", Applicant suggests that each of these recitations, when considered in its fuller context, and in combination with Figs. 1-3, is clear. More particularly, on page 10, the fuller recitation is ". . . joint rotation of clutch plates 26 and 28, as denoted by arrows B and C . . ." and on page 12, ". . . rotation of clutch plate 26 by clutch plate 28, as denoted by arrows B and C." In Figs. 1-3, arrows B and C are shown on clutch plates 26 and

28 and point in the same direction to illustrate rotation in that direction, and the teeth of the clutch plates are shown engaged, such that it is believed that it should be apparent to one skilled in the art that in both instances the clutch plates are rotating in the same direction together. Accordingly, this explanation is believed to overcome the objection.

To overcome the objection to the specification as failing to comply with 37 CFR 1.71 and 1.75 (d)(1) because the specification allegedly fails to provide antecedent basis for the subject matter of claims 8, 14 and 22, Applicant herein amends paragraph [0027] of the specification to include the subject matter of those claims. As those are original claims, no new matter is added by this amendment.

Responsive to the rejection of the claims, Applicant herein amends independent claims 1 and 16 to be more patentably distinguishable over the cited prior art, and to overcome the rejection under section 112 and objection thereto (claim 1). Dependent claims 2, 5, 6, 7, 8 and 17 are amended to conform to the language of the base claim from which they depend. All of the claims are now believed to be distinguishable over the cited prior art and allowable. With new drawing Figure 1a, and the amendments to the specification, the present application is believed to be in condition for allowance.

Turning to amended claim 1, that claim is directed to an improved jaw clutch for transferring rotational power from a driving rotatable member to a driven rotatable member. The jaw clutch includes a first clutch plate connected to one of the rotatable members for rotation therewith and movement along a predetermined path relative thereto, and a second clutch plate connected to another of the rotatable members for rotation therewith adjacent to an end of the path, the clutch plates including teeth matingly engageable when the clutch plates are in abutment for connecting the clutch plates for joint rotation. Claim 1 is amended to require a clutch spring **having a predetermined spring rate** disposed for exerting a spring force against the first clutch plate for holding the first clutch plate at the end of the path in abutment with the second clutch plate. Claim 1 requires the clutch spring to be yieldable to a disengagement force greater than the spring force applied against the first clutch plate in opposition to the spring force such that the first clutch plate will be moved along the path away from the second clutch plate and the teeth of the clutch plate connected to the drivingly

rotated member will move in a ratcheting action over the teeth of the clutch plate connected to the driven rotating member.

In the rejection under section 102 (b), the Examiner equates "anti-rattle" spring 64 of the Leonard clutch with the clutch spring of claim 1. In response, Applicant notes that the Leonard patent itself describes anti-rattling spring 64 as " . . . a very light wave spring sufficient to take up slack volume and prevent rattling . . ." (col. 3, lines 35-38). Applicant asserts that the Examiner's equating spring 64 to a clutch spring as that term is typically meant, would not be correct, as anti-rattle spring 64 is not disclosed or illustrated as having a sufficient displaceability to allow the teeth of the clutch plates of that device to ratchet in the manner required in the claim. Applicant suggests instead that it appears that the weaker anti-rattle spring 64 would indeed yield to disengagement forces, but that at least one of the springs 69 of Leonard must also yield to allow the ratcheting action in that clutch.

Claim 1 further requires the ratcheting action to generate shock forces between the clutch plates having magnitudes substantially greater than **the** magnitude of the disengagement force at time intervals which are a function of a relative speed of rotation of the clutch plates. Such forces may indeed be generated by the ratcheting of the Leonard clutch. However, and importantly, the improvement to the jaw clutch of claim 1 requires a shock damper to include a spring **having a predetermined spring rate several times greater than the spring rate of the clutch spring** disposed in connection with the second clutch plate **in a position** for absorbing a substantial portion of energy of the shock forces generated between the clutch plates. Claim 1 further requires the shock damper to then release the energy so as to be at least partially dissipated by the clutch such that resulting portions of shock forces exerted against the rotating members will be damped so as to have maximum magnitudes equal to less than half of the magnitudes of the shock forces generated between the clutch plates, while holding the second clutch plate substantially stationary adjacent to the end of the path.

Nowhere in the Leonard patent does Applicant find a teaching or suggestion of absorption of shock forces and dissipation thereof in the manner claimed, nor of one of the springs 64 or 69 holding a clutch plate stationary during such dissipation of forces. More particularly, as pointed out above, and as indicated by the Examiner, springs 69 are the stronger springs. But springs 69 still must yield to disengagement forces to allow ratcheting of the clutch teeth. Spring 64 is a light spring, so logically, it also must yield. Thus, neither spring 64 or springs 69 appear to be capable of operating to absorb and dissipate shock forces

generated by ratcheting, while holding a clutch plate substantially stationary, as required in claim 1. Accordingly, Applicant respectfully asserts that the Leonard patent does not include all of the elements of amended claim 1 in the arrangement set forth therein, nor are all of the functional requirements of that claim disclosed or suggested in Leonard.

For the foregoing reasons, claim 1 is believed to be patentably distinguishable over Leonard. With the addition of the structural elements to the improvements of claim 1 as set forth above, namely, that the shock damper includes a spring having a spring rate several times greater than the spring rate of the clutch spring, and is positioned for absorbing a substantial portion of energy of shock forces generated between the clutch plates, claim 1 is also believed to be in compliance with 35 U.S.C. 112. Claim 1 is therefore now believed to be allowable.

Claims 2, 3 and 5-9 depend from amended claim 1 and add further limitations thereto. For instance, amended claim 2 requires the spring of the shock damper to be a disk spring, and claim 3 requires the disk spring of claim 2 to be operable in cooperation with the clutch spring for cyclically transferring at least a portion of the energy of the shock force between the clutch plates for dissipating the energy. These features are not disclosed or suggested in Leonard. Claim 5 requires the spring rate of the disk spring to be at least ten times that of the clutch spring. This is also not disclosed in Leonard. Accordingly, claims 2, 3 and 5-9, in combination with the limitations of amended base claim 1, are believed to be patentably distinguishable over the cited prior art and allowable.

Original independent claim 10 is directed to an improved jaw clutch engageable for connecting a rotatable shaft and a rotatable member supported thereon for joint rotation about an axis of the shaft, the clutch being disengageable for allowing relative rotation of the shaft and the member. Claim 10 requires first and second clutch plates mounted on the shaft having axially opposing teeth matingly engageable for joint rotation thereof, and a clutch spring disposed for applying an axial spring force against the first clutch plate for holding the opposing teeth in mating engagement. Claim 10 requires the clutch plates to be movable apart by application of a disengagement force between the teeth such that the opposing teeth will rotate in ratcheting relation so as to alternatingly disengage and fully or partially matingly re-engage to exert axial shock forces against the clutch plates having magnitudes several

times greater than magnitudes of the spring force and the disengagement force. And, importantly, claim 10 requires the improvement to comprise a damper spring disposed between the second clutch plate and an element mounted at an axially fixed location on the shaft, the damper spring having **a spring rate at least several times greater than a spring rate of the clutch spring so as to hold the second clutch plate in a substantially stationary axial position when only the spring force and the disengagement force are applied**, and so as to absorb at least a substantial portion of energy of the shock forces exerted against the clutch plates and dissipate energy thereof in cooperation with the clutch spring and the clutch plates such that resultant axial shock forces exerted against the shaft will have maximum magnitudes of less than half the magnitudes of the shock forces exerted against the clutch plates.

Applicant respectfully asserts that, for many of the reasons set forth above in regard to claim 1 and incorporated herein by reference, this combination of features and function of the clutch of claim 10 is not disclosed, taught and/or suggested in the Leonard patent. In particular, spring 64 of Leonard is a light, "anti-rattle" spring, not a clutch spring. And, neither the spring 64 or springs 69 hold the second clutch plate in a substantially stationary axial position when the spring force and the disengagement force are applied, nor is it disclosed that they dissipate energy in the manner required in the claim. Applicant suggests instead that it appears that the lighter anti-rattle spring 64 would yield to disengagement forces, and most likely dissipate much of the energy. For the foregoing reasons, claim 10 is believed to be patentably distinguishable over Leonard.

Claims 11-15 depend from claim 10 and add further limitations thereto. Accordingly, claims 11-15, in combination with the limitations of base claim 10, are believed to be patentably distinguishable over the cited prior art and allowable.

Amended independent claim 16 is directed to an improved jaw clutch mounted on a shaft rotatable about an axis therethrough, the clutch including a first clutch plate mounted on the shaft for rotation therewith and axial movement therealong, and a second clutch plate mounted on a sleeve around the shaft and connected to a rotatable member for rotation about

the shaft. Claim 16 requires the sleeve to have a shoulder therearound at a predetermined axial location, the clutch plates having axially opposing teeth matingly engageable for connecting the shaft and the member for driven rotation of one by the other, and a clutch spring disposed for applying an axial spring force against the first clutch plate for holding the opposing teeth in mating engagement, the clutch plates being movable axially apart by application of a disengagement force between the teeth resulting from resistance to rotation of the driven one of the shaft and the member such that the opposing teeth will rotate in ratcheting relation wherein the teeth cyclically disengage and fully or partially matingly re-engage so as to exert axial shock forces against the clutch plates having magnitudes several times greater than magnitudes of the spring force and the disengagement force, respectively.

The improvement of claim 16 requires a resilient shock damper including a disk spring disposed between the second clutch plate and the shoulder, **the disk spring having a spring rate sufficiently greater than a spring rate of the clutch spring so as to hold the second clutch plate substantially axially stationary when only the spring force and the disengagement force are applied, and so as to absorb energy of the shock forces exerted against the second clutch plate and release and redirect the energy through the clutch plates to the clutch spring so as to be at least partially dissipated such that any resulting shock forces exerted against the shaft will have magnitudes substantially less than magnitudes of the shock forces exerted against the clutch plates.**

Again, Applicant respectfully asserts that, for many of the reasons set forth above in regard to claims 1 and 16, and incorporated herein by reference, this combination of features and function of the clutch of claim 16 is not disclosed, taught and/or suggested in the Leonard patent. In particular, spring 64 of Leonard is a light, "anti-rattle" spring, not a clutch spring. And, neither the spring 64 or springs 69 hold the second clutch plate in a substantially stationary axial position when the spring force and the disengagement force are applied, nor is it disclosed that they dissipate energy in the manner required in the claim. Applicant suggests instead that it appears that the lighter anti-rattle spring 64 would yield to disengagement

forces, and most likely dissipate much of the energy. For the foregoing reasons, claim 16 is believed to be patentably distinguishable over Leonard.

Claims 17-22 depend from claim 16 and add further limitations thereto. Accordingly, those claims, in combination with the limitations of base claim 16, are believed to be patentably distinguishable over the cited prior art and allowable.

All of the proposed claims in the application, namely claims 1 through 3 and 5 through 22, contain limitations which distinguish them over the cited prior art, are believed to be in compliance with 35 U.S.C. 112, and thus are believed to be in allowable condition. Favorable action and allowance of all of the claims is therefore respectfully requested.

A one month extension of time is requested to extend the time for submitting this Amendment. The Office Action was mailed on December 22, 2004, and the initial three month period in which to submit a response ended on March 22, 2005. The one month extension of time extends the response time to April 22, 2005. Enclosed is a check in the amount of $120.00 which is the charge for an extension of one month as set forth in 37 CFR §1.17(a)(1) for a large entity. The Commissioner is authorized to charge any credit or deficiency to Deposit Account No. 08-1280.

If the Examiner has any further requirements or suggestions for placing the present claims in condition for allowance, Applicant's undersigned attorney would appreciate a telephone call at the number listed below.

Respectfully submitted,

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